

Claims

1. A piezoelectric actuator, having

- a multilayered structure of piezoelectric layers (2), having a piezoelectrically active region (A), with internal electrodes (3, 4) that are situated between the layers and can be acted on with an electrical voltage, and having
- inactive regions (B, C) without internal electrodes in the top part and bottom part of the piezoelectric actuator (1), characterized in that
- the dielectric constant (ϵ'_{33}) of at least the top part or bottom part, as an inactive region (B, C), is less than the dielectric constant (ϵ_{33}) of the active region (A).

2. The piezoelectric actuator according to claim 1, characterized in that

- the inactive regions (B, C) and the active region (A) are manufactured out of the same ceramic base substance and additional doping agents are added to the inactive regions (B, C) to minimize the dielectric constant (ϵ'_{33}).

3. The piezoelectric actuator according to claim 2, characterized in that

- the base substance is lead zirconate titanate (PZT) and the doping agent is silver.

4. The piezoelectric actuator according to one of the preceding claims, characterized in that

- the layer thicknesses (d_B , d_C) of the inactive regions (B, C) are the same.

5. The piezoelectric actuator according to one of the preceding claims, characterized in that

- the inactive regions (B, C) are composed of an electrically polarized ceramic with an electrical field applied to it so as to minimize the dielectric constant (ϵ'_{33}).